



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2011-0915; Directorate Identifier 2011-NM-020-AD; Amendment 39-17013; AD 2012-07-07]**

**RIN 2120-AA64**

**Airworthiness Directives; The Boeing Company Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for all The Boeing Company Model 747 airplanes. This AD was prompted by reports of fractured latch pins found in service; investigation revealed that the cracking and subsequent fracture were initiated by fatigue and propagated by a combination of fatigue and stress corrosion. This AD requires repetitive general visual inspections for broken or missing latch pins of the lower sills of the forward and aft lower lobe cargo doors; repetitive detailed inspections for cracking of the latch pins; and corrective actions if necessary. We are issuing this AD to detect and correct fractured or broken latch pins, which could result in a forward or aft lower lobe cargo door opening and detaching during flight, and consequent rapid decompression of the airplane.

**DATES:** This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707,

MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; e-mail [me.boecom@boeing.com](mailto:me.boecom@boeing.com); Internet <https://www.myboeingfleet.com>. You may review copies of the referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Nathan Weigand, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: (425) 917-6428; fax: (425) 917-6590; e-mail: [nathan.p.weigand@faa.gov](mailto:nathan.p.weigand@faa.gov).

### **SUPPLEMENTARY INFORMATION:**

#### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that would apply to the specified products. That NPRM was published in the Federal Register on September 1, 2011 (76 FR 54405). That NPRM proposed to require repetitive general visual inspections for broken or missing latch pins of the lower sills of the forward and aft lower lobe cargo doors; repetitive detailed inspections for cracking of the latch pins; and corrective actions if necessary.

## **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the proposal and the FAA's response to each comment.

### **Request to Withdraw the NPRM (76 FR 54405, September 1, 2011)**

United Parcel Service (UPS) asked that we withdraw the NPRM (76 FR 54405, September 1, 2011). UPS stated that there is a lack of justification for issuing the NPRM and added that it is being issued based on a report of a fatigue crack in the 17-4PH material latch pins of the lower cargo door, and the assumption that adjacent latch pins could also be affected. UPS noted that the latching structures of the lower forward and aft cargo door each include eight latch pins; those latch pins are part of a fail-safe design, which should preclude critical failure with the failure of one element. UPS added that the Model 747-400 maintenance planning document includes a detailed inspection of the latch mechanism of the lower cargo door, which includes the latch pins, at 2 year or 2,000 flight cycle intervals, whichever occurs first. UPS noted that the NPRM would require repetitive inspections at 1,600-flight-cycle intervals—a modest increase in frequency over the existing maintenance program—which has already been proven successful at detecting damage to adjacent latch pins. UPS concluded that, based on the extensive fleet history of the latch pins of these lower cargo doors, with no reports of adjacent pin failures, the existing maintenance program inspections of the latch pins are adequate.

We do not agree with the commenter's request to withdraw the NPRM (76 FR 54405, September 1, 2011). Although the commenter has not experienced pin failure in service, the manufacturer has found pin fatigue failure on another airplane of the same type design. Therefore, we find we must issue this AD to address the identified unsafe condition on the entire fleet.

The inspections identified in the maintenance planning document are general visual inspections of the entire door. The inspections required by this final rule include detailed inspections of the latch pins themselves. These detailed inspections are the result of the pin fracturing in service. The fractured pin was the number eight latch pin on the lower sill of the aft lower lobe cargo door; investigation by the manufacturer revealed that the crack initiated due to fatigue, and propagated by a combination of fatigue and stress corrosion. If the latch pins on the lower sill are not regularly inspected, and broken latch pins are not replaced, the forward and/or aft cargo door could open during service, resulting in loss of the cargo door, rapid decompression, and significant damage to the airplane. No change to the AD is necessary in this regard.

#### **Request to Clarify Language in Relevant Service Information Section**

Boeing asked that the description specified in the “Relevant Service Information” section of the NPRM (76 FR 54405, September 1, 2011) be changed as follows: “The service bulletin describes procedures for repetitive detail inspections of latch pins for broken or missing latch pins of the lower sills of the forward and aft lower lobe cargo doors; repetitive detailed inspections of the replaced latch pins for cracked, broken or missing latch pins; and corrective actions if necessary.” Boeing stated that Boeing Alert Service Bulletin 747-53A2835, dated October 28, 2010, necessitates that a detailed inspection be done on all pins (including previously replaced pins). Boeing added that the detailed inspection is for cracks, and the general visual inspection is to look for the broken and missing pins. Boeing notes that paragraph (g) of the NPRM provides the correct description of the inspections specified in the service bulletin.

We acknowledge the commenter’s concern and agree that the language could be clarified somewhat; however, since that section of the preamble does not reappear in the final rule, no change to this AD is necessary in this regard.

### **Request to Include Revision 1 of the Referenced Service Bulletin**

Boeing also asked that Boeing Alert Service Bulletin 747-53A2835, Revision 1, dated December 8, 2011, be included in the NPRM (76 FR 54405, September 1, 2011) for accomplishing certain actions. Boeing Alert Service Bulletin 747-53A2835, dated October 28, 2010, was referred to as the appropriate source of service information for accomplishing the actions specified in the NPRM. Boeing added that Boeing Alert Service Bulletin 747-53A2835, Revision 1, dated December 8, 2011, is scheduled for FAA-approval, and includes a latch pin modification and post-modification inspection to address the safety issue.

We have reviewed Boeing Alert Service Bulletin 747-53A2835, Revision 1, dated December 8, 2011, and agree to include it in this final rule as an additional source of service information. Boeing Alert Service Bulletin 747-53A2835, Revision 1, dated December 8, 2011, reduces an existing compliance time, adds a latch pin modification, and repetitive post-modification inspections. We are including the actions in Boeing Alert Service Bulletin 747-53A2835, Revision 1, dated December 8, 2011, as optional in order to avoid delaying issuance of the AD. We have revised paragraph (g) of this AD accordingly. We are currently considering additional rulemaking to require the modification and post-modification inspections.

### **Conclusion**

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously – and minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM (76 FR 54405, September 1, 2011) for correcting the unsafe condition; and

- Do not add any additional burden upon the public than was already proposed in the NPRM (76 FR 54405, September 1, 2011).

We also determined that these changes will not increase the economic burden on any operator or increase the scope of the AD.

### **Costs of Compliance**

We estimate that this AD affects 228 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

#### **Estimated costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Inspection	3 work-hours X \$85 per hour = \$255 per inspection cycle	\$0	\$255 per inspection cycle	\$58,140 per inspection cycle

We estimate the following costs to do any necessary replacements/modifications that would be required based on the results of the required inspection. We have no way of determining the number of aircraft that might need these actions:

#### **On-condition costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>
Replacement of latch pins	8 work-hours X \$85 per hour = \$680	\$0	\$680
Modification of latch fittings	36 hours X \$85 per work-hours = \$3,060	\$0	\$3,060

### **Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: “General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### **Regulatory Findings**

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

### **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

### **PART 39 - AIRWORTHINESS DIRECTIVES**

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

**§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

**2012-07-07 The Boeing Company:** Amendment 39-17013; Docket No. FAA-2011-0915; Directorate Identifier 2011-NM-020-AD.

**(a) Effective Date**

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to all The Boeing Company Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747-400, 747-400D, 747-400F, 747SR, and 747SP series airplanes; certificated in any category.

**(d) Subject**

Joint Aircraft System Component (JASC)/Air Transport Association (ATA) of America Code 53: Fuselage.

**(e) Unsafe Condition**

This AD was prompted by reports of fractured latch pins found in service; investigation revealed that the cracking and subsequent fracture were initiated by fatigue and propagated by a combination of fatigue and stress corrosion. We are issuing this AD to detect and correct fractured or broken latch pins, which could result in a forward or aft lower lobe cargo door opening and detaching during flight, and consequent rapid decompression of the airplane.



**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Inspections**

Before the accumulation of 6,000 total flight cycles, or within 1,000 flight cycles after the effective date of this AD, whichever occurs later: Do a general visual inspection for broken or missing latch pins of the lower sills of the forward and aft lower lobe cargo doors, and a detailed inspection for cracking of the latch pins, in accordance with paragraph 3.B., “Work Instructions,” of Boeing Alert Service Bulletin 747-53A2835, dated October 28, 2010; or Boeing Alert Service Bulletin 747-53A2835, Revision 1, dated December 8, 2011. Repeat the inspections thereafter at the applicable intervals specified in paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2835, dated October 28, 2010; or Boeing Alert Service Bulletin 747-53A2835, Revision 1, dated December 8, 2011. Before further flight, do all applicable corrective actions, in accordance with paragraph 3.B., “Work Instructions,” of Boeing Alert Service Bulletin 747-53A2835, dated October 28, 2010; or Boeing Alert Service Bulletin 747-53A2835, Revision 1, dated December 8, 2011.

**(h) Special Flight Permits**

Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the airplane can be modified (if the operator elects to do so), provided the cabin is not pressurized.

**(i) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information

directly to the manager of the ACO, send it to the attention of the person identified in the Related Information section of this AD. Information may be e-mailed to:

[9-ANM-Seattle-ACO-AMOC-Requests@faa.gov](mailto:9-ANM-Seattle-ACO-AMOC-Requests@faa.gov).

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair required by this AD if it is approved by the Boeing Commercial Airplanes ODA that has been authorized by the Manager, Seattle ACO, to make those findings. For a repair method to be approved, the repair must meet the certification basis of the airplane.

**(j) Related Information**

For more information about this AD, contact Nathan Weigand, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: (425) 917-6428; fax: (425) 917-6590; e-mail: [nathan.p.weigand@faa.gov](mailto:nathan.p.weigand@faa.gov).

**(k) Material Incorporated by Reference**

You must use the following service information to do the actions required by this AD, unless the AD specifies otherwise. The Director of the Federal Register approved the incorporation by reference (IBR) under 5 U.S.C. 552(a) and 1 CFR part 51 of the following service information.

(1) Boeing Alert Service Bulletin 747-53A2835, dated October 28, 2010.

(2) Boeing Alert Service Bulletin 747-53A2835, Revision 1, dated December 8, 2011.

(3) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle,

WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; e-mail [me.boecom@boeing.com](mailto:me.boecom@boeing.com); Internet <https://www.myboeingfleet.com>.

(4) You may review copies of the referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

(5) You may also review copies of the service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to:

<http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Renton, Washington, on March 28, 2012.

Kalene C. Yanamura,  
Acting Manager,  
Transport Airplane Directorate,  
Aircraft Certification Service.

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